Digital Devices 2

FOUNDATION DIPLOMA IN INFORMATION TECHNOLOGY YEAR 1

Digital Devices 2

Many specialist digital devices that perform a single, or small number, of specific tasks.

We saw one of these, a navigation system

Digital Devices 2

Multifunctional Devices

Digital Cameras

Data Capture & Collection Systems

Communication Devices & Systems

Summarise each of the above digital Devices in 3 bullet points/sentences. Give examples of each

Multifunctional Devices

A multifunctional device, sometimes known as an MFD, is one that is capable of performing more than one specific function. We also often refer to these as multifunctional peripherals.

A common example of this is a peripheral device that can perform both input and output. However, it is not exclusive to this. A printer/fax is a multifunctional device, even though both functions are output.

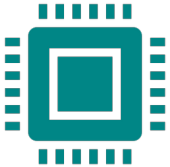
In fact, multifunctional printers often combine several functions, such as printing, scanning, faxing and photocopying.

Examples of multifunctional devices include multifunctional printers, touchscreens, and force-feedback game controllers.

Uses

A multifunctional printer is a device that usually combines printing, scanning & faxing functions all into a single device. These are particularly popular for use in home offices for people who work from home and do not have the space or money for three separate devices.

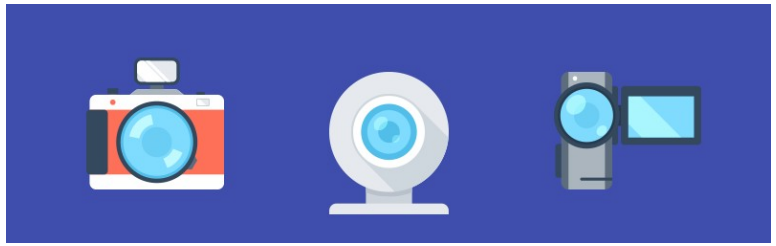
Touch screens are used on tablet devices to allow users to input without a separate keyboard or mouse. The screen the user views on is also how they input, by touching objects on the screen or by using an onscreen keyboard.



Force-feedback game controllers are used on games consoles to allow you to control the game and receive vibration output. The vibration output is usually designed to improve the immersive experience of the game, such as rumbling in a car game when you go off track, or a fighting game when you’re hit.

Further thought

What other devices can you think of that are capable of both input and output?



Digital Cameras

This is a device that is capable of taking photo and video and recording it as digital data.

It does this by using a grid of photosensors that convert light into digital pixels that our computer can store, usually on a memory card. When we refer to a camera having a certain number of ‘megapixels’ (million pixels), this refers to the number of individual pixels of colour that are used to record an image.

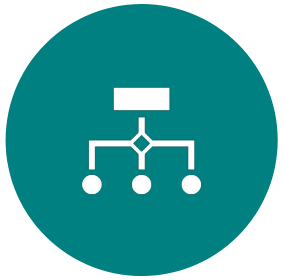
The more megapixels a camera uses to record an image, the higher quality the image is. 20 megapixels is relatively common in modern digital cameras.

Most digital camera devices contain a built-in memory card slot to store the digital pictures and videos directly on the digital camera device. As the memory card is removable it allows you to then transfer them to another device such as a laptop so that they can be stored on a computer and displayed on a screen.

Examples of digital cameras include digital still cameras and digital video cameras.

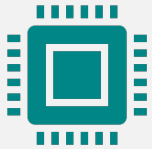
Uses

One of the uses of digital cameras is to allow us to share them using a computer. We often upload pictures and videos to our social networking profiles, like Facebook or Instagram, in order to share them with family and friends. We might also send them to others through the use of email as attachments.



vWe also use them as we can edit the digital pictures and videos on our computer using photo & video editing software. You've often heard of the term 'Photoshopping' an image, which refers to the use of a software program called Photoshop that we can use to remove blemishes or perform even heavier changes to a photo.

Further Thought



Can you think of any other ways you would use digital videos or photos?

What if you want to display them at home?

Data Capture & Collection Systems

Data capture & collection systems input and store data through methods other than direct data entry (such as typing on a keyboard). Rather, the data is entered as a result of a related activity.

This allows the data to be entered into a computer system directly during the data capture stage and so greatly reduces the number of human error issues that happen when manually entering data.

Examples of data capture & collection systems include barcode scanners, optical mark readers (OMR) and magnetic ink character readers (MICR).

Uses

These devices are often used at the EPOS till in shops such as supermarkets.

Barcode scanners capture data by reading the widths of dark & light bars. We use these input product items by reading the barcode we find on the back of most products. When the barcode is read it matches it to a database of products on the computer and returns things like the price of the product.

OMR is used in shops for inputting lottery tickets. Pre-printed forms like lottery tickets are designed so that when marks are placed on it, the OMR device can detect what numbers you have selected from the marks' location on the form.

MICR is used for verifying that cheques are legitimate. A special kind of magnetised ink is used to write a code on the bottom of a cheque. The MICR device reads the magnetic field of the characters to read the code to ensure it is a legitimate cheque.

Obviously, these types of devices are only useful for very specific reasons. They aren't flexible enough for the general uses we want at home or even in most workplaces.

Further Thought

Other than in a shop like a supermarket, where might you see barcode scanners, OMR or MICR being used?

Communication Devices & Systems

A device that is used to move data between two other devices, such as two computers.

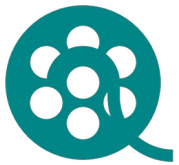
It has become almost essential for all of our computing systems to be able to communicate with each other, such as through the internet or other smaller networks.

Communication devices allow us to transmit data between devices over a network in various ways. Sometimes through wired cabling, sometimes wirelessly.

Examples of communication devices include network interface cards (NIC), wireless dongles and routers.

Uses

These devices are all used to allow you to transmit data over a network, commonly the internet, but they are also used in other types of network like a local area network (LAN).



Network Interface Cards, for example, allow data to be transferred to and from a networked computer by connecting an ethernet cable. We commonly use these with desktop personal computers.

Wireless dongles allow you to either transfer data to a router wirelessly as part of a local area network or connect to a mobile broadband network. We commonly use these with laptops. WiFi and even mobile broadband connectivity are often integrated directly into mobile devices like smartphones and tablets.

A router directs data to its correct destination over a large network. Wherever two networks meet, a router is required to direct the data in the right direction along the next network in order to reach its destination. You probably use a router at home to allow the multiple different devices in your house to connect to the same internet connection.

Further Thought

Can Network Interface Cards only be used for wired data communication?

Do you need a Wi-Fi dongle to use wireless networking?

Lesson Summary

Multifunctional devices are capable of more than one function, such as input and output. They’re used for many different reasons, such as touch screens that allow you to input data without a separate keyboard, and force feedback game controllers that let you control the game while receiving vibration as output.

Digital cameras are used to take photo and video and store it as digital data. This can then be used to share the photos and videos online or to edit them using photo or video editing software.

Communication devices and systems move data between two other devices, such as two computers. We use them for networking, including to send and receive data over the internet.

Data capture and collection systems input and store data through methods other than direct data entry. They’re commonly used in shops at the EPOS till, such as barcode scanners for inputting products.